

WHAT IS CLAIMED IS:

- 5
1. A data storing system comprising:
- 10 a user apparatus which stores data;  
an issuing apparatus which is held by an issuer that provides the user apparatus, and issues and manages a registration certificate;  
a data providing apparatus which is held by a data provider that provides data;  
an issuer registration apparatus which is held by an issuer registrar that registers and manages the issuer; and
- 15 a data registration apparatus which is held by a data registrar that registers and manages the data provider;
- 20 wherein the user apparatus comprises:  
registration information generation means which generates registration information on a key including a user public key or a part of a secret key, sends the registration information to the issuing apparatus with user information; and
- 25 registration verification means which verifies a registration certificate, received from the issuing apparatus, which is signature information or a hash value of the issuer for the registration information and the user information, stores the registration certificate to a storage device when the registration certificate is verified;
- 30 wherein the issuing apparatus comprises registration generation means which generates the registration certificate and sends the registration certificate to the user apparatus.
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2. A data storing system comprising:

5       a user apparatus which stores data;  
      an issuing apparatus which is held by an  
      issuer that provides the user apparatus, and issues  
      and manages a registration certificate;  
      a data providing apparatus which is held  
10   by a data provider that provides data;  
      an issuer registration apparatus which is  
      held by an issuer registrar that registers and  
      manages the issuer; and  
      a data registration apparatus which is  
15   held by a data registrar that registers and manages  
      the data provider;  
      wherein the user apparatus comprises:  
      registration verification means which  
20   verifies a registration certificate, received from  
      the issuing apparatus, which is signature  
      information or a hash value of the issuer for  
      registration information and user information,  
      stores the registration certificate to a storage  
      device when the registration certificate is  
25   verified;  
      wherein the issuing apparatus comprises:  
      registration information generation means  
      which generates registration information on a key  
      including a user public key or a part of a secret  
30   key and generates user information;  
      registration generation means which  
      generates the registration certificate and sends the  
      registration certificate to the user apparatus.

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3. The data storing system as claimed in claim 1, the user apparatus further comprising:

means which sends the registration certificate and storing data information to the  
5 issuing apparatus;

means which verifies a storing authorization when the storing authorization is received from the issuing apparatus;

means which verifies that the storing data  
10 information corresponds to storing data which is acquired; and

means which stores the storing data into the storage device when it is verified that the storing data information corresponds to the storing  
15 data;

the issuing apparatus further comprising:  
means which verifies the registration certificate and the storing data information which are received from the user apparatus;

20 means which provides certificate information to the registration certificate and the storing data information for generating a storing authorization request when the registration certificate and the storing data information are  
25 verified; and

means which sends the registration certificate, the storing data information and the storing authorization request to the data providing apparatus;

30 means which verifies a storing authorization which is received from the data providing apparatus; and

means which sends the storing authorization to the user apparatus when the storing  
35 authorization is verified;

the data providing apparatus further comprising:

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means which verifies the storing authorization request;

means which provides certificate information to the storing authorization request and  
5 the storing data information when the storing authorization request is verified for generating a storing authorization, and sends the storing authorization to the issuing apparatus.

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4. The data storing system as claimed in claim 1, the user apparatus further comprising:

15 means which sends the registration certificate and storing data information to the data providing apparatus;

means which verifies a storing authorization when the storing authorization is  
20 received from the issuing apparatus;

means which verifies that the storing data information corresponds to storing data which is acquired; and

means which stores the storing data into  
25 the storage device when it is verified that the storing data information corresponds to the storing data;

the data providing apparatus further comprising:

30 means which verifies the registration certificate and the storing data information which are received from the user apparatus;

means which provides certificate information to the registration certificate and the  
35 storing data information for generating a storing authorization request when the registration certificate and the storing data information are

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verified; and

means which sends the registration certificate, the storing data information and the storing authorization request to the issuing

5 apparatus;

means which verifies a storing authorization which is received from the issuing apparatus; and

10 means which sends the storing authorization to the user apparatus when the storing authorization is verified;

the issuing apparatus further comprising:

means which verifies the storing authorization request;

15 means which provides certificate information to the storing authorization request and the storing data information when the storing authorization request is verified for generating a storing authorization, and sends the storing  
20 authorization to the data providing apparatus.

25 5. The data storing system as claimed in claim 1, the user apparatus further comprising:

means which sends the registration certificate and storing data information to the data providing apparatus;

30 means which verifies a storing authorization which is received from the data providing apparatus;

means which verifies that the storing data information corresponds to storing data which is  
35 acquired;

means which stores the storing data in the storage device when it is verified that the storing

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data information corresponds to the storing data;  
the data providing apparatus further  
comprising:

means which verifies the registration  
5 certificate which is received from the user  
apparatus;

means which generates a storing  
authorization wherein certificate information is  
provided to the registration certificate and the  
10 storing data information when the registration  
certificate is verified, and sends the storing  
authorization to the user apparatus.

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6. The data storing system as claimed in  
claim 1, the issuing apparatus further comprising:

means which sends information used for  
20 providing certificate information to the issuer  
registration apparatus;

means which verifies an issuer  
registration certificate which is received from the  
issuer registration apparatus;

25 means which stores the issuer registration  
certificate when the issuer registration certificate  
is verified;

means which generates the registration  
certificate to the user apparatus, and sends the  
30 registration certificate to the user apparatus with  
the issuer registration certificate;

the issuer registration apparatus further  
comprising:

means which provides certificate  
35 information to the information used for providing  
the certificate information for generating the  
issuer registration certificate, and sends the

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issuer registration certificate to the issuing apparatus;

the user apparatus further comprising:  
means which verifies the registration  
5 certificate and the issuer registration certificate  
which are received from the issuing apparatus; and  
means which stores the registration  
certificate and the issuer registration certificate  
into the storage device when the registration  
10 certificate and the issuer registration certificate  
are verified.

15 7. The data storing system as claimed in  
claim 3, the data providing apparatus further  
comprising:

means which sends information used for  
20 providing certificate information to the data  
registration apparatus;

means which verifies data provider  
registration certificate received from the data  
registration apparatus, and stores the data provider  
25 registration certificate when the data provider  
registration certificate is verified;

means which generates storing data with  
certificate information wherein the certificate  
information is provided to the storing data, and  
30 adds the data provider registration certificate to  
the storing data with certificate information;

the data registration apparatus further  
comprising;

means which generates the data provider  
35 registration certificate wherein certificate  
information is added to the information which is  
received from the data providing apparatus, and

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sends the data provider registration certificate to the data providing apparatus;

the user apparatus further comprising;

means which verifies the storing data with  
5 certificate information which is received from the data providing apparatus by using the data provider registration certificate, and stores the storing data into the storage device when the storing data with certificate information is verified.

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8. The data storing system as claimed in  
15 claim 4, the data providing apparatus further comprising:

means which sends information used for providing certificate information to the data registration apparatus;

20 means which verifies data provider registration certificate received from the data registration apparatus, and stores the data provider registration certificate when the data provider registration certificate is verified;

25 means which generates storing data with certificate information wherein the certificate information is provided to the storing data, and adds the data provider registration certificate to the storing data with certificate information;

30 the data registration apparatus further comprising;

means which generates the data provider registration certificate wherein certificate information is added to the information which is  
35 received from the data providing apparatus, and sends the data provider registration certificate to the data providing apparatus;

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the user apparatus further comprising;  
means which verifies the storing data with  
certificate information which is received from the  
data providing apparatus by using the data provider  
5 registration certificate, and stores the storing  
data into the storage device when the storing data  
with certificate information is verified.

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9. The data storing system as claimed in  
claim 5, the data providing apparatus further  
comprising:

15 means which sends information used for  
providing certificate information to the data  
registration apparatus;

means which verifies data provider  
registration certificate received from the data  
20 registration apparatus, and stores the data provider  
registration certificate when the data provider  
registration certificate is verified;

means which generates storing data with  
certificate information wherein the certificate  
25 information is provided to the storing data, and  
adds the data provider registration certificate to  
the storing data with certificate information;

the data registration apparatus further  
comprising;

30 means which generates the data provider  
registration certificate wherein certificate  
information is added to the information which is  
received from the data providing apparatus, and  
sends the data provider registration certificate to  
35 the data providing apparatus;

the user apparatus further comprising;  
means which verifies the storing data with

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certificate information which is received from the data providing apparatus by using the data provider registration certificate, and stores the storing data into the storage device when the storing data with certificate information is verified.

10           10. The data storing system as claimed in claim 3, the data providing apparatus further comprising:

                  means which sends storing data to be stored in the user apparatus and information used for providing certificate information to the data registration apparatus;

                  the data registration apparatus further comprising;

                  means which generates data certificate wherein certificate information is added to the storing information and the information which is received from the data providing apparatus, and sends the data certificate to the data providing apparatus;

25           the data providing apparatus further comprising:

                  means which verifies the data certificate received from the data registration apparatus, and stores the data certificate when the data certificate is verified;

                  means which sends the storing data and the data certificate as storing data with certificate information to the user apparatus;

                  the user apparatus further comprising;

35           means which receives and verifies the storing data with certificate information, and stores the storing data into the storage device when

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the storing data with certificate information is verified.

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11. The data storing system as claimed in claim 3, the user apparatus further comprising means which deletes the storing data which is in the storage device.

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12. The data storing system as claimed in claim 4, the user apparatus further comprising means which deletes the storing data which is in the storage device.

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13. The data storing system as claimed in claim 5, the user apparatus further comprising means which deletes the storing data which is in the storage device.

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14. An issuing apparatus in a data storing system which comprises: a user apparatus which stores data; the issuing apparatus which is held by an issuer that provides the user apparatus, and issues and manages a registration certificate; a data providing apparatus which is held by a data provider that provides data; an issuer registration

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apparatus which is held by an issuer registrar that registers and manages the issuer; and a data registration apparatus which is held by a data registrar that registers and manages the data provider, the issuing apparatus comprising:

means which receives user information and registration information on a key including a user public key or a part of a secret key from the user apparatus; and

registration generation means which generates registration certificate from the registration information and the user information, and sends the registration certificate to the user apparatus.

15. An issuing apparatus in a data storing system which comprises: a user apparatus which stores data; the issuing apparatus which is held by an issuer that provides the user apparatus, and issues and manages a registration certificate; a data providing apparatus which is held by a data provider that provides data; an issuer registration apparatus which is held by an issuer registrar that registers and manages the issuer; and a data registration apparatus which is held by a data registrar that registers and manages the data provider, the issuing apparatus comprising:

means which generates user information and registration information on a key including a user public key or a part of a secret key; and

registration generation means which generates registration certificate from the registration information and the user information, and sends the registration certificate to the user

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apparatus.

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16. The issuing apparatus as claimed in claim 14, further comprising:

means which receives the registration certificate and storing data information from the user apparatus;

means which verifies the registration certificate and the storing data information;

means which provides certificate information to the registration certificate and the storing data information for generating a storing authorization request when the registration certificate and the storing data information are verified; and

means which sends the registration certificate, the storing data information and the storing authorization request to the data providing apparatus;

means which verifies a storing authorization which is received from the data providing apparatus; and

means which sends the storing authorization to the user apparatus when the storing authorization is verified.

30

17. The issuing apparatus as claimed in claim 14, further comprising:

means which receives the registration certificate, storing data information and a storing authorization request from the data providing

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apparatus;

means which verifies the storing  
authorization request;

means which provides certificate  
5 information to the storing authorization request and  
the storing data information when the storing  
authorization request is verified for generating a  
storing authorization, and sends the storing  
authorization to the data providing apparatus.

10

18. The issuing apparatus as claimed in  
15 claim 14, further comprising:

means which sends information used for  
providing certificate information to the issuer  
registration apparatus;

means which verifies an issuer  
20 registration certificate which is received from the  
issuer registration apparatus;

means which stores the issuer registration  
certificate when the issuer registration certificate  
is verified;

25 means which generates the registration  
certificate to the user apparatus, and sends the  
registration certificate to the user apparatus with  
the issuer registration certificate.

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19. A data providing apparatus in data  
storing system which comprises: a user apparatus  
35 which stores data; an issuing apparatus which is  
held by an issuer that provides the user apparatus,  
and issues and manages a registration certificate;

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the data providing apparatus which is held by a data provider that provides data; an issuer registration apparatus which is held by an issuer registrar that registers and manages the issuer; and a data  
5 registration apparatus which is held by a data registrar that registers and manages the data provider, wherein the user apparatus comprises:

registration information generation means which generates registration information on a key  
10 including a user public key or a part of a secret key, sends the registration information to the issuing apparatus with user information; and

registration verification means which verifies a registration certificate, received from  
15 the issuing apparatus, which is signature information or a hash value of the issuer for the registration information and the user information, stores the registration certificate to a storage device when the registration certificate is  
20 verified;

wherein the issuing apparatus comprises registration generation means which generates the registration certificate and sends the registration certificate to the user apparatus,

25 the data providing apparatus comprising:  
means which receives the certificate registration, storing data information and a storing authorization request from the issuing apparatus;

means which verifies the storing  
30 authorization request;

means which provides certificate information to the storing authorization request and the storing data information when the storing authorization request is verified for generating a  
35 storing authorization, and sends the storing authorization to the issuing apparatus.

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20. The data providing apparatus as  
5 claimed in claim 19, further comprising:  
means which verifies the registration  
certificate and storing data information which are  
received from the user apparatus;  
means which provides certificate  
10 information to the registration certificate and the  
storing data information for generating a storing  
authorization request when the registration  
certificate and the storing data information are  
verified; and  
15 means which sends the registration  
certificate, the storing data information and the  
storing authorization request to the issuing  
apparatus;  
means which verifies a storing  
20 authorization which is received from the issuing  
apparatus; and  
means which sends the storing  
authorization to the user apparatus when the storing  
authorization is verified.

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21. The data providing apparatus as  
30 claimed in claim 19, further comprising:  
means which receives the registration  
certificate and storing data information from the  
user apparatus;  
means which verifies the registration  
35 certificate;  
means which generates a storing  
authorization wherein certificate information is

provided to the registration certificate and the storing data information when the registration certificate is verified, and sends the storing authorization to the user apparatus.

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22. The data providing apparatus as  
10 claimed in claim 19, further comprising:  
means which sends information used for providing certificate information to the data registration apparatus;  
means which verifies data provider  
15 registration certificate received from the data registration apparatus, and stores the data provider registration certificate when the data provider registration certificate is verified;  
means which generates storing data with  
20 certificate information wherein the certificate information is provided to the storing data, and adds the data provider registration certificate to the storing data with certificate information; and  
means which sends the data provider  
25 registration certificate and the storing data with certificate information to the user apparatus.

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~~23~~. A computer readable medium storing program code for causing a data storing system to store data, the data storing system comprising: a user apparatus which stores data; an issuing  
35 apparatus which is held by an issuer that provides the user apparatus, and issues and manages a registration certificate; a data providing apparatus

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which is held by a data provider that provides data;  
an issuer registration apparatus which is held by an  
issuer registrar that registers and manages the  
issuer; and a data registration apparatus which is  
5 held by a data registrar that registers and manages  
the data provider; the computer readable medium  
comprising:

registration information generation  
program code means, provided for the user apparatus,  
10 which generates registration information on a key  
including a user public key or a part of a secret  
key, sends the registration information to the  
issuing apparatus with user information; and

registration verification program code  
15 means, provided for the user apparatus, which  
verifies a registration certificate, received from  
the issuing apparatus, which is signature  
information or a hash value of the issuer for the  
registration information and the user information,  
20 stores the registration certificate to a storage  
device when the registration certificate is  
verified;

registration generation program code means,  
provided for the issuing apparatus, which generates  
25 the registration certificate and sends the  
registration certificate to the user apparatus.

30

24. A computer readable medium storing  
program code for causing a data storing system to  
store data, the data storing system comprising: a  
user apparatus which stores data; an issuing  
35 apparatus which is held by an issuer that provides  
the user apparatus, and issues and manages a  
registration certificate; a data providing apparatus

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which is held by a data provider that provides data;  
an issuer registration apparatus which is held by an  
issuer registrar that registers and manages the  
issuer; and a data registration apparatus which is  
5 held by a data registrar that registers and manages  
the data provider; the computer readable medium  
comprising:

registration verification program code  
means, provided for the user apparatus, which  
10 verifies a registration certificate, received from  
the issuing apparatus, which is signature  
information or a hash value of the issuer for  
registration information and user information,  
stores the registration certificate to a storage  
15 device when the registration certificate is  
verified;

registration information generation  
program code means, provided for the issuing  
apparatus, which generates registration information  
20 on a key including a user public key or a part of a  
secret key and generates user information;

registration generation program code means,  
provided for the issuing apparatus, which generates  
the registration certificate and sends the  
25 registration certificate to the user apparatus.

30 25. The computer readable medium as  
claimed in claim 23, further comprising:

program code means, provided for the user  
apparatus, which sends the registration certificate  
and storing data information to the issuing  
35 apparatus;

program code means, provided for the user  
apparatus, which verifies a storing authorization

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when the storing authorization is received from the issuing apparatus;

program code means, provided for the user apparatus, which verifies that the storing data  
5 information corresponds to storing data which is acquired; and

program code means, provided for the user apparatus, which stores the storing data into the storage device when it is verified that the storing  
10 data information corresponds to the storing data;

program code means, provided for the issuing apparatus, which verifies the registration certificate and the storing data information which are received from the user apparatus;

program code means, provided for the issuing apparatus, which provides certificate information to the registration certificate and the storing data information for generating a storing  
15 authorization request when the registration certificate and the storing data information are  
20 verified; and

program code means, provided for the issuing apparatus, which sends the registration certificate, the storing data information and the  
25 storing authorization request to the data providing apparatus;

program code means, provided for the issuing apparatus, which verifies a storing authorization which is received from the data  
30 providing apparatus; and

program code means, provided for the issuing apparatus, which sends the storing authorization to the user apparatus when the storing authorization is verified;

program code means, provided for the data  
35 providing apparatus, which verifies the storing authorization request;

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program code means, provided for the data providing apparatus, which provides certificate information to the storing authorization request and the storing data information when the storing authorization request is verified for generating a storing authorization, and sends the storing authorization to the issuing apparatus.

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26. The computer readable medium as claimed in claim 23, further comprising:

program code means, provided for the user apparatus, which sends the registration certificate and storing data information to the data providing apparatus;

program code means, provided for the user apparatus, which verifies a storing authorization when the storing authorization is received from the issuing apparatus;

program code means, provided for the user apparatus, which verifies that the storing data information corresponds to storing data which is acquired; and

program code means, provided for the user apparatus, which stores the storing data into the storage device when it is verified that the storing data information corresponds to the storing data;

program code means, provided for the data providing apparatus, which verifies the registration certificate and the storing data information which are received from the user apparatus;

program code means, provided for the data providing apparatus, which provides certificate information to the registration certificate and the storing data information for generating a storing

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authorization request when the registration certificate and the storing data information are verified; and

5           program code means, provided for the data providing apparatus, which sends the registration certificate, the storing data information and the storing authorization request to the issuing apparatus;

10           program code means, provided for the data providing apparatus, which verifies a storing authorization which is received from the issuing apparatus; and

15           program code means, provided for the data providing apparatus, which sends the storing authorization to the user apparatus when the storing authorization is verified;

          program code means, provided for the issuing apparatus, which verifies the storing authorization request;

20           program code means, provided for the issuing apparatus, which provides certificate information to the storing authorization request and the storing data information when the storing authorization request is verified for generating a  
25   storing authorization, and sends the storing authorization to the data providing apparatus.

30

27. The computer readable medium as claimed in claim 23, further comprising:

35           program code means, provided for the user apparatus, which sends the registration certificate and storing data information to the data providing apparatus;

          program code means, provided for the user

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apparatus, which verifies a storing authorization which is received from the data providing apparatus;

program code means, provided for the user apparatus, which verifies that the storing data  
5 information corresponds to storing data which is acquired;

program code means, provided for the user apparatus, which stores the storing data in the storage device when it is verified that the storing  
10 data information corresponds to the storing data;

program code means, provided for the data providing apparatus, which verifies the registration certificate which is received from the user apparatus;

15 program code means, provided for the data providing apparatus, which generates a storing authorization wherein certificate information is provided to the registration certificate and the storing data information when the registration  
20 certificate is verified, and sends the storing authorization to the user apparatus.

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28. The computer readable medium as claimed in claim 23, further comprising:

program code means, provided for the issuing apparatus, which sends information used for  
30 providing certificate information to the issuer registration apparatus;

program code means, provided for the issuing apparatus, which verifies an issuer registration certificate which is received from the  
35 issuer registration apparatus;

program code means, provided for the issuing apparatus, which stores the issuer

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registration certificate when the issuer  
registration certificate is verified;

program code means, provided for the  
issuing apparatus, which generates the registration  
5 certificate to the user apparatus, and sends the  
registration certificate to the user apparatus with  
the issuer registration certificate;

program code means, provided for the  
issuer registration apparatus, which provides  
10 certificate information to the information used for  
providing the certificate information for generating  
the issuer registration certificate, and sends the  
issuer registration certificate to the issuing  
apparatus;

15 program code means, provided for the user  
apparatus, which verifies the registration  
certificate and the issuer registration certificate  
which are received from the issuing apparatus; and

program code means, provided for the user  
20 apparatus, which stores the registration certificate  
and the issuer registration certificate into the  
storage device when the registration certificate and  
the issuer registration certificate are verified.

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29. The computer readable medium as  
claimed in claim 25, further comprising:

30 program code means, provided for the data  
providing apparatus, which sends information used  
for providing certificate information to the data  
registration apparatus;

program code means, provided for the data  
35 providing apparatus, which verifies data provider  
registration certificate received from the data  
registration apparatus, and stores the data provider

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registration certificate when the data provider  
registration certificate is verified;

program code means, provided for the data  
providing apparatus, which generates storing data  
5 with certificate information wherein the certificate  
information is provided to the storing data, and  
adds the data provider registration certificate to  
the storing data with certificate information;

program code means, provided for the data  
10 registration apparatus, which generates the data  
provider registration certificate wherein  
certificate information is added to the information  
which is received from the data providing apparatus,  
and sends the data provider registration certificate  
15 to the data providing apparatus;

program code means, provided for the user  
apparatus, which verifies the storing data with  
certificate information which is received from the  
data providing apparatus by using the data provider  
20 registration certificate, and stores the storing  
data into the storage device when the storing data  
with certificate information is verified.

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30. The computer readable medium as  
claimed in claim 26, further comprising:

program code means, provided for the data  
30 providing apparatus, which sends information used  
for providing certificate information to the data  
registration apparatus;

program code means, provided for the data  
providing apparatus, which verifies data provider  
35 registration certificate received from the data  
registration apparatus, and stores the data provider  
registration certificate when the data provider

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registration certificate is verified;

program code means, provided for the data providing apparatus, which generates storing data with certificate information wherein the certificate information is provided to the storing data, and adds the data provider registration certificate to the storing data with certificate information;

program code means, provided for the data registration apparatus, which generates the data provider registration certificate wherein certificate information is added to the information which is received from the data providing apparatus, and sends the data provider registration certificate to the data providing apparatus;

program code means, provided for the user apparatus, which verifies the storing data with certificate information which is received from the data providing apparatus by using the data provider registration certificate, and stores the storing data into the storage device when the storing data with certificate information is verified.

25

31. The computer readable medium as claimed in claim 27, further comprising:

program code means, provided for the data providing apparatus, which sends information used for providing certificate information to the data registration apparatus;

program code means, provided for the data providing apparatus, which verifies data provider registration certificate received from the data registration apparatus, and stores the data provider registration certificate when the data provider registration certificate is verified;

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program code means, provided for the data providing apparatus, which generates storing data with certificate information wherein the certificate information is provided to the storing data, and  
5 adds the data provider registration certificate to the storing data with certificate information;

program code means, provided for the data registration apparatus, which generates the data provider registration certificate wherein  
10 certificate information is added to the information which is received from the data providing apparatus, and sends the data provider registration certificate to the data providing apparatus;

program code means, provided for the user  
15 apparatus, which verifies the storing data with certificate information which is received from the data providing apparatus by using the data provider registration certificate, and stores the storing data into the storage device when the storing data  
20 with certificate information is verified.

25 32. The computer readable medium as claimed in claim 25, further comprising:

program code means, provided for the data providing apparatus, which sends storing data to be stored in the user apparatus and information used  
30 for providing certificate information to the data registration apparatus;

program code means, provided for the data registration apparatus, which generates data certificate wherein certificate information is added  
35 to the storing information and the information which is received from the data providing apparatus, and sends the data certificate to the data providing

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apparatus;

program code means, provided for the data  
providing apparatus, which verifies the data  
certificate received from the data registration  
5 apparatus, and stores the data certificate when the  
data certificate is verified;

program code means, provided for the data  
providing apparatus, which sends the storing data  
and the data certificate as storing data with  
10 certificate information to the user apparatus;

program code means, provided for the user  
apparatus, which receives and verifies the storing  
data with certificate information, and stores the  
storing data into the storage device when the  
15 storing data with certificate information is  
verified.

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33. The computer readable medium as  
claimed in claim 25, further comprising:

program code means, provided for the user  
apparatus, which deletes the storing data which is  
25 in the storage device.

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34. The computer readable medium as  
claimed in claim 26, further comprising:

program code means, provided for the user  
apparatus, which deletes the storing data which is  
in the storage device.

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35. The computer readable medium as claimed in claim 27, further comprising:

5       program code means, provided for the user apparatus, which deletes the storing data which is in the storage device.

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36. A computer readable medium storing program code for causing an issuing apparatus in a data storing system to perform processes, the data storing system comprising: a user apparatus which  
15 stores data; the issuing apparatus which is held by an issuer that provides the user apparatus, and issues and manages a registration certificate; a data providing apparatus which is held by a data provider that provides data; an issuer registration  
20 apparatus which is held by an issuer registrar that registers and manages the issuer; and a data registration apparatus which is held by a data registrar that registers and manages the data provider, the computer readable medium comprising:

25       program code means which receives user information and registration information on a key including a user public key or a part of a secret key from the user apparatus; and

30       registration generation program code means which generates registration certificate from the registration information and the user information, and sends the registration certificate to the user apparatus.

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37. A computer readable medium storing program code for causing an issuing apparatus in a data storing system to perform processes, the data storing system comprising: a user apparatus which  
5 stores data; the issuing apparatus which is held by an issuer that provides the user apparatus, and issues and manages a registration certificate; a data providing apparatus which is held by a data  
10 provider that provides data; an issuer registration apparatus which is held by an issuer registrar that registers and manages the issuer; and a data registration apparatus which is held by a data registrar that registers and manages the data provider, the computer readable medium comprising:  
15 program code means which generates user information and registration information on a key including a user public key or a part of a secret key; and  
registration generation program code means  
20 which generates registration certificate from the registration information and the user information, and sends the registration certificate to the user apparatus.

25

38. The computer readable medium as claimed in claim 36, further comprising:  
30 program code means which receives the registration certificate and storing data information from the user apparatus;  
program code means which verifies the registration certificate and the storing data  
35 information;  
program code means which provides certificate information to the registration

certificate and the storing data information for generating a storing authorization request when the registration certificate and the storing data information are verified; and

5               program code means which sends the registration certificate, the storing data information and the storing authorization request to the data providing apparatus;

              program code means which verifies a  
10 storing authorization which is received from the data providing apparatus; and

              program code means which sends the storing authorization to the user apparatus when the storing authorization is verified.

15

39. The computer readable medium as  
20 claimed in claim 36, further comprising:

              program code means which receives the registration certificate, storing data information and a storing authorization request from the data providing apparatus;

25               program code means which verifies the storing authorization request;

              program code means which provides certificate information to the storing authorization request and the storing data information when the  
30 storing authorization request is verified for generating a storing authorization, and sends the storing authorization to the data providing apparatus.

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40. The computer readable medium as claimed in claim 36, further comprising:

program code means which sends information used for providing certificate information to the  
5 issuer registration apparatus;

program code means which verifies an issuer registration certificate which is received from the issuer registration apparatus;

program code means which stores the issuer  
10 registration certificate when the issuer registration certificate is verified;

program code means which generates the registration certificate to the user apparatus, and sends the registration certificate to the user  
15 apparatus with the issuer registration certificate.

20 41. A computer readable medium storing program code for causing a data providing apparatus in a data storing system to perform processes, the data storing system comprising: a user apparatus which stores data; an issuing apparatus which is  
25 held by an issuer that provides the user apparatus, and issues and manages a registration certificate; the data providing apparatus which is held by a data provider that provides data; an issuer registration apparatus which is held by an issuer registrar that  
30 registers and manages the issuer; and a data registration apparatus which is held by a data registrar that registers and manages the data provider, wherein the user apparatus comprises:

registration information generation means  
35 which generates registration information on a key including a user public key or a part of a secret key, sends the registration information to the

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issuing apparatus with user information; and  
                   registration verification means which  
 verifies a registration certificate, received from  
 the issuing apparatus, which is signature

10                wherein the issuing apparatus comprises  
registration generation means which generates the  
registration certificate and sends the registration  
certificate to the user apparatus,

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        program code means which verifies the
20    storing authorization request;

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        program code means which verifies the
        registration certificate and storing data
35  information which are received from the user
        apparatus;

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5 information are verified; and

10           program code means which verifies a  
storing authorization which is received from the  
issuing apparatus; and

20                   43. The computer readable medium as  
                    claimed in claim 41, further comprising:

25           program code means which verifies the  
          registration certificate;

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44. The computer readable medium as

claimed in claim 41, further comprising:

program code means which sends information used for providing certificate information to the data registration apparatus;

5           program code means which verifies data provider registration certificate received from the data registration apparatus, and stores the data provider registration certificate when the data provider registration certificate is verified;

10           program code means which generates storing data with certificate information wherein the certificate information is provided to the storing data, and adds the data provider registration certificate to the storing data with certificate  
15 information; and

program code means which sends the data provider registration certificate and the storing data with certificate information to the user apparatus.

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